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An Apple a Day

S. J. Singh

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AN APPLE A DAY

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An Apple a Day

THE APPLE is the king of fruits and has been known and appreciated from prehistoric ages. The Scandinavians called it the "Food of the Gods" and believed it possessed virtue to renew both mind and body.

Composition

The analysis of ripe apples gives us for 100 g. of fresh food : water 84, ashes 0.30, reduction sugars 8, saccharose 4, cellulose 0.80, pentosans 0.50, lignine 0.40, free acids (in malic acid) 0.60, compound acids 0.20, pectin 0.40, lipids 0.30, and proteins 0.10. However, the chemieal composition of apples varies within fairly wide limits according to variety, and seasonal and cultivation conditions. Viscosity increases with maturity, starting a little higher than water up to ten times as much.

Protective Value

Apples can be considered as a typical "protective" food. They belong to the category of food which, apart from its energy value and possible form, plays an important part in the normal development of metabolic functions. The protective value of food depends above all on the vitamins and mineral substances which it contains as well as certain special amino-acids.

Vitamins

Apples contain an appreciable quantity of vitamins C, B_1, P_2, A, niacin and pantothenic acid, and in relatively small amounts vitamins E, H, and B_6. The average values for vitamins in mg. per 100 g. of nutritive substance of apples are : B_1 0.04, B_2 0.03, Niacin 0.20, B_6 0.02, H 0.009, Pantothenic acid 0.06, C 5, A 0.03, E 0.003.

In all varieties of apples, the vitamin C content is greater in the skin and decreases little by little as one goes to the centre of the fruit. It does not, however, vary according to the picking season

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nor during a storage period of not more than two or three months, although withering causes large losses of vitamins. Cooking also destroys between one third and a half of the vitamin C present in the fruit, and even more is destroyed by processing of the juice and condensation while exposed to air.

Vitamin B_1, whose action is essential to the proper functioning of the nervous system, the digestive organs and the heart, is found in average quantity of 0.04 mg. per cent in apples.

Apples also contain 0.03 mg. per cent of vitamin B_2. Vitamin B_2 is an essential factor in the activity of important ferments which control the respiratory exchanges of tissues and it also acts on the metabolism of glycids, amino-acids and iron.

Vitamin A, which controls growth, tropism of epitheliums and sight and participates in other important functions of the defence of the organism is not found as such in fruit, but in the form of carotene.

The simultaneous presence of certain vitamins in the diet is necessary for good health, as they interact to stimulate each other. The different vitamin elements should be administered in balanced doses by relation to each other. The diet must therefore have recourse to well organized vitamin ensembles and, as far as possible under normal conditions, to natural sources of vitamins offered by fruit. Among these the apple has the privilege of giving us, just during the season when it is most difficult to reach the desired optimum in the diet, a good vitamin supply (Baserga, 1953).

Mineral Substances

As well as vitamins, other important nutritive elements found in apples are mineral substances. Average figures of quantity in mg. of minerals per 100 g. of edible portion of apples are: Calcium 6, Phosphorus 10, Iron 0.30, Iodine 0.0066, Sodium 15, Potassium 116, Magnesium 6, Sulphur 4, Chlorine 4, Copper 0.10, Manganese 0.11, Zinc 0.07.

Vegetal products play a principal role in satisfying the mineral requirements of the organism. As can easily be seen, apples are particularly rich in mineral substances, especially potassium salts, which are found either in fresh fruit or in apple infusions and natural and concentrated juice.

One litre of apple juice has a total content of 3 to 4.5 g. of minerals.

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Organic Acids

Malic acid is the characteristic acid of the apple; it is found there in its free form with citric acid. It is these two acids which give apples their special acidity.

Pectic substances, although they include pectic and pectinic acids, do not make a noticeable contribution to the acidity of the fruit as they are mostly esterified or combined in the form of salts. Other acids such as oxalic, lactic and ascorbic acids are found in too small quantities to contribute to the acidity of apples.

Bases

As is known, the acid-base balance of the organism, that is the balance consisting of the maintenance in a state of slight alkaline reaction (pH 7.35) necessary for the preservation of health, the liquids in circulation and the tissues, depends on the metabolism of the component parts of the diet.

It is with the aim of maintaining this balance that, in the normal diet, one tries to compensate for the fixed acids, of which there is an excess, and which are formed in the metabolism of food producing acids (that is, rich in sulphur, phosphorus and chlorine) with other food giving a good quantity of elements from which bases originate (sodium, potassium, calcium and magnesium). The best alkalising foods are vegetables and fruit whose mineral salts (derived from weak organic acids) split rapidly during the metabolic reactions producing carbonic acid by oxidation; the latter, in the presence of sodium and potassium, forms bicarbonates with strong alkaline reaction required for the neutralisation of fixed acids.

The alkalising value of apples results from the analysis of ash, when the balance of acid and alkaline radicals is drawn up. The difference between the sum of the bases and the acids in apples expressed in mg. equivalents, shows a definite excess of bases (Tecce, 1948) :

Bases	..	8.65
Acids	..	2.11
Alkaline value		+ 6.54

Sugars

The energy value of apples is provided by glycids: in quantitive order, these are found in apples: lævulose, dextrose, and in far smaller quantities, saccharose and sorbitol; it seems

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that a higher sugar content in fruit does not correspond to a lower acid content (Kulish).

The mechanism of the formation of sugar in apples has not yet been fully elucidated: starch, more or less abundant in acid fruit, and saccharose, which is formed in the first stages of ripening are rapidly converted into dextrose and inverted sugar (dextrose + lævulose). Lævulose and dextrose are immediately utilizable for energy requirements. The average percentage sugar content, which is 12-15 g. in fresh fruit, stays more or less constant in juice, while it increases naturally in dried apples and dishes requiring a concentration of the pulp or those which, like jam, jellies and syrups, added saccharose.

Pectic Substances

Apples are very rich in pectic substances—Polyosis—acid compounds of the type of rubber—widely distributed in the plants where they have the main function of cementing the vegetable cells. Their nutritional and commercial importance consists above all in their capacity for changing with the appropriate acid and sugar concentration, to this semifluid product well known under the name of gelatine.

In almost all fruit, pectic substances are found in great abundance in the pulp, but in the apple they are found in appreciable quantities in core, pips and skin. It follows that for production of jelly, the whole apple should be used (Hugues).

Pectic substances are found in three different forms in apples:

(1) Protopectine, also called pectinogen, insoluble in the water which abounds in acid fruit or fruit which is not very ripe and which, in an acid surrounding, turns into hydro-soluble pectine under the influence of the pectinaceous enzymes.

(2) Pectine itself which has the characteristic property of producing gelatine and which is particularly abundant in completely ripe fruit.

(3) Pectine acid which is a product of the breaking down of pectine due to the enzyme action of pectase and which is especially abundant in over-ripe fruit.

To obtain the maximum return in gelatine, the unripe or over-ripe fruit must be removed, and those selected which are at the stage of perfect ripeness.

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Enzymes

The only enzymes producing changes in carbohydrates during the ripening of apples are, according to the results of experiments, oxydases and one diastase: neither invertase, tannase, emulsine nor pectase were found. Esterase and protease, present in small quantities, seem to control the hydrolysis of essential oils and proteins. Peroxydase, in the presence of an organic peroxide and tannin supplied by the chromogenous group is the enzyme responsible for the easy blackening of the pulp when it is cut or shredded.

Nitrogenous and Fat substances

Apples, like all fruit, contain little nitrogenous and fat substances. Only the pips are rich in protein (especially in globuline) and also contain oils and lecithines as well as sugars, pentosans and amygdaline.

Sensorial Characteristics

The smell of the apple fruit is due to an essence which is believed to be composed above all of amylic esters of formic, acetic and caproic acids, of small quantities of caprylic ester, as well as ethylic alcohol and acetaldehyde, both in large proportions. From particularly strong-smelling apples, geraniol termen has been isolated (McIntosh).

The alcohol part is mainly formed by methylic, ethylic and propylic alcohols (Thompson, 1951). Ethylic alcohol present in the essence is considered by some as an intermediate product or respiration of the vegetable cells and consequently a physiological component, while others think that ethylic alcohol, with acetaldehyde, is only also found in the ordinary tissues in special conditions. Often, during too long a period of storage, these products, accumulated in large quantities, can accelerate the withering of the fruit.

The special taste of apples is a combination of smells and savours, due to esters, aromatic components, acids, tannin, sugars and other substances still unknown.

As ripening proceeds, the percentage of free acid decreases, while that of other substances increases, particularly that of sugar.

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Choice of Varieties for Eating

The differences between the many varieties of apples (differences of an essentially quantitive character) determine whether the fruit is used for dessert, for cooking or for the manufacture of drinks, although, sometimes, one variety meets the various conditions and can be used in all these ways. The special qualities of those suitable for pastry making are not clear, and the distinction between the cider apple and the cooking apple even less so.

Appreciation of the apple is, indeed, linked with our alimentary senses (taste, smell, appearance, touch). To a certain extent, the tastes of different peoples turn to some varieties rather than to others. At the end of their meal, Europeans generally prefer an apple with firm flesh which offers resistance to chewing, while Americans prefer an apple with a soft consistency.

Generally speaking, to cook well, an apple must be acid enough for the pulp to soften under the effect of heat; if the acidity is too strong for the palate, it must be counteracted by the addition of a little sugar. The chemical "test" for cooking apples is therefore the acid content. Apples with low acid content (0.14 to 0.28 per cent) become fibrous, insipid and uneatable. The average type is that containing 0.5 per cent acids. High quality cooking apples contain from 0.73 to 1.09 per cent acid.

For the manufacture of cider, apples with the highest possible acid content are required.

For the manufacture of fresh apple juice (which has become one of the drinks preferred by the consumer, especially in the United States and Switzerland), a product with a high sugar content and a considerable quantity of organic acids is required; the choice must, therefore, be made among the semi-sweet apples cut up together with a small quantity of slightly acid apples. The best juice is obtained, indeed, from a must composed half of bitter apples and half of sweet apples, poor in tannic substances with at least 10 per cent sugar content and a K pH 3, 3-3, 4 acidity. Small fruit which cannot be sold in the market or exported because of their appearance, often give the best juice because they are rich in sugar and acids. Even reject fruit can be used for the preparation of juice and concentrates if it is not

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mildewed, and above all is undamaged, indeed, they lose vitamin C as they rot.

The natural juice obtained by pressing the fruit consists mainly of water (very pure) which is a vehicle for substances in real solution and substances in colloidal solution, as well as very small fragments of cellular material in suspension. It is generally these fragments which contain the largest portion of vitamins and nutritive substances and which give the drink its smell and savour.

Condensed apple juice offers considerable advantages, as much because of the decrease of the volume to 1/5 (which means an economy in transportation and storage) and also because it does not ferment owing to its 75 per cent. sugar content. A good concentrate must be palatable, in composition similar to the juice from which it comes, clear and a good colour. Concentrates are thus an excellent basis for the preparation by dilution of refreshing drinks and syrups with high nutritive and therapeutic value, but poor in vitamins, which therefore are added artificially.

Since early times, cider has been obtained from the fermented juice of fresh apples. It is now-a-days consumed in large quantities in America and France.

Therapeutic Use

In 1919 a German physician, Dr. Heissler, was called to see a patient who had been suffering for four weeks from acute **intestinal catarrh** and was exhausted and emaciated. None of the remedies tried had done any good. Dr. Heissler had heard of a man who had cured himself very quickly of long-standing and very severe **intestinal catarrh** by a diet of grated raw apples, and he decided to try an experiment. To his great astonishment, the patient recovered within a few days. Another German physician, Kutroff who had a large hospital near the western front, cured the most severe cases of **dysentery** with apples. He gave his patients one and a half kilos (3.3 pounds) of grated raw apples daily. He also used whole apples, which had to be very well chewed. Most of the cases were cured within two days and improved noticeably in one day.

Moro's Apple Treatment

Grated raw apples have since been used in a great many hospitals, if only sporadically and in a rule-of-thumb way, in symptomatic therapy of **infantile diarrhœa.** In 1929, Dr. Moro of

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Heidelberg applied it on a large scale and with undisputed success, which has associated his name for ever with this form of treatment. The diet must be administered as follows: the subjects must not undergo other treatment; apples, selected from among the half-ripe ones, must be peeled, cored and grated on a glass grater; the pulp of the apple is thus reduced to a soft mass which rapidly turns brown in the air because of oxidation phenomena. The quantity to be administered varies with the age of the subject; the daily dose varies between 500 and 1,500 g., which should be divided into five meals, that is from 100 to 300 g. at each feeding. During the first two days of the treatment, no other food or drink is allowed except for pure water to quench the thirst where necessary and to avoid dehydration. From the third day (**diarrhœa** usually disappears within the first 24 hours) the patient goes on to two days of a transition diet which contains neither milk nor vegetables, but only cereals and gruels. After that the patient is administered gradually with many precautions, a mixed diet trying out what the patient can take before returning to a normal diet. (*Klinische Wochenschrift*, Berlin).

Moro employed this treatment in fifty-two children; twenty-two had **acute dyspepsia,** fifteen had **dysentery,** one had **typhoid,** eight had **chronic dyspepsia** and the remainder had either **mucous enteritis** or chronic insufficiency of the digestive organs. The ages of the children varied between one and ten years. Several infants were likewise subjected to the apple diet. The results were nearly the same as in older children. However, the author does not recommend the apple diet for nurslings.

In the majority of children who received the apple diet, the **diarrhœa** stopped immediately, and on the first or second day the stools were formed. Relapses occurred rarely. The author thinks that the efficacy of this treatment is due to the fact that the apple pulp provides a filling for the intestine which is not irritative and which tranquilizes the motor apparatus of the intestine. The effect of the apple pulp is probably due to its content of tannic acid. The passage of the pulpy mass through the intestine not only effects a mechanical purification but also acts as an absorbent.

Many eminent physicians in various European countries have also followed the above method with marked success. Dr. P. A. Earnshaw of Sydney treated a large number of his patients, includ-

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ing some adults, on the above lines with entire success, and published his results in the *Medical Journal of Australia.* No bad effects from the diet were reported.

Some variations to the traditional method of administering the apple diet have been proposed. Thus, some authors advise administering the apples partly grated and partly whole (Laffkowitz), others the use of rather green apples without peeling them (Heissler, Kohlbruggs), still others, among them Moro himself, proclaim the efficacity of cooked apples (Heissler, Moro).

Banana and Apple Diet

In pædiatrics, the use of apples has also been proposed for the dietetic treatment of **Gee-Herter diseases.** These are diseases whose ætiology and pathological development are rather complex and are characterized, from the metabolic and digestive point of view, by difficulties of absorption and the impossibility of taking starches, disaccharides, and fats. In the initial treatment of these diseases (1st and 2nd days), it is advisable to follow a diet exclusively composed of fruit with a base of bananas and apples (500 to 1,000 g.). Then, while adding other foods (acid skimmed milk, cheese with low fat content, vegetable puree) bananas and apples must continue to form the basic factor of the diet.

Rice and Apple Dlet

For a long time a diet with a fruit basis has been used and the day of meals of fruit only practised for illnesses of **heart** and **kidneys** and for **hypertension.** The apple diet not only has a rapid and considerable diuretic effect but it also relieves the kidneys by reducing the supply of sodium chloride to a minimum (content less than 0.010 g. per cent) and in addition because of the high level of potassium. It also lowers the sodium level in the tissues. For these reasons, apples are particularly suitable for the *hypsodic diet* of rice and fruit proposed by Kempner for the treatment of **hypertension.** Some authors (Jagic in Austria, Baserga in Italy) successfully modified Kempner's diet by administering to their **hypertension** patients a basic rice and apple ration. Recently, Teggia and Balboni proved that the administration of a diet of rice and apples to **diabetic** patients with **hypertension** not only causes a decrease in arterial tension but also an improvement in the glycid metabolism itself.

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The ancient custom of treating severe **chapping, sores** and **gangrene** with apple poultices is perhaps justified by the bactericide action of apple juice. In a normal juice with pH 3-4 acidity, microbes of **typhoid fever, paratyphoid** and **dysentery** are destroyed in 24 hours (Lombardo, 1948).

The resistance of the organism to bacterial toxins and toxic elements is linked with the presence of certain vitamins and uronic acids (Manville, 1938). From apple pectin is in fact derived in great abundance an uronic acid which forms, with possible foreign bodies, toxic or medicinal, soluble non-toxic compounds which are consequently easily eliminated without irritating the kidneys (Sullivan, 1939).

From experiments made with animals, if apples (which in any case contain no vitamin D) are added to a diet in the proportion of 10 per cent the assimilation of calcium by the organism is augmented (Mindell, 1939).

As far as thiamine and riboflavine are concerned, it is incorrect according to Sherman, to consider fruit as a negligible source of these vitamins, because in view of their high water content and their relative poverty in calories, both fresh fruit and vegetables (even frozen and conserved) can be taken in large quantities without running the risk of getting fatter. According to the same author, the diet of an adult should contain about 1 kg. of fruit and vegetables a day as the source of mineral and vitamin factors. For the same reasons, apples can be advantageously employed in slimming diets, being poor in fats and proteins and rich in water; the result consequently is a sweet solution, naturally rich in vitamins and mineral substances, which gives the feeling of being satisfied at the same time supplying a relatively low number of calories.

On this point, as also in connection with the hypsodic diets of which we have spoken, one can agree with Baserga that apples are as useful in medicine for what they contain as for what they do not.

Its smell, its inviting appearance, and its richness in organic acids make an apple eaten at the end of a meal a digestive, which stimulates an abundant secretion of saliva which can to some extent remedy the damage caused by the bad and very widespread habit of eating the meal too quickly. For stomachs suffering from

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atony, it is advisable to cook the apple by direct heat; the skin then forms an envelope to preserve the savour and aroma and undergoes slight caramelization which makes it completely assimilable. Apples reduced by stewing with the addition of sugar, cinnamon, nutmeg or lemon peel offer to lazy or difficult stomachs a dessert which can be served throughout the year. Whether made with fresh or dried fruit, it is an equally health giving dish.

In the peel of the apple there is a substance, pectin, which has the quality of causing blood to congeal. This is now largely used in treating cases of excessive **bleeding.**

The apple is also excellent for treating diseases affecting metabolism. Even with cooked apples, doctors have had very good results in treating **dropsy,** also diseases of the **heart** and **blood vessels.** These patients had about 3 pounds of stewed apples slightly sweetened, with no other food, on three days in the week.

Apples are an excellent preventive of **tooth-decay.** According to Dr. J. T. Hanks (in the *Dental Survey*), "Apples have a mouth-cleansing property that no other fruit possesses, and taken after meals they have the same effect as a tooth brush in cleansing the teeth, with the added advantage that the acid content, aside from its nutritive value, is of assistance in promoting the flow of saliva in the mouth, which is also beneficial to the teeth."

According to German chemists, apples contain a larger percentage of phosphorus than any other fruit or vegetable. They are for this reason an invaluable nerve and brain food. Sufferers from **nerve** and **brain exhaustion** should eat at least two apples *at the beginning of each meal.* They have a calming and relaxing effect, and are good for intellectual workers.

To obviate **constipation** two or three apples taken at night, whether baked or raw, are admirably efficient. It was said long ago—

To eat an apple going to bed
Will make the doctor beg his bread.

Apples are invaluable to sufferers from **stone** or **calculus.** In countries where the natural unsweetend cider is the common beverage, cases of **stone** or **calculus** are practically unknown. How much better and more valuable the fresh ripe fruit must be ! It is

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said that apples are a good substitute for alcohol; that those who eat apples do not drink whiskey and vice versa !

The Apple Cure

The *apple-cure* is a useful form of treatment for **inebriety, dyspepsia, weak digestion, sick headache, biliousness** and **auto-intoxication.** The bowels are first cleansed with a lactose enema, and the patient then fed apples only to the extent of one, two or even three pounds per day for a few days. Apples may be taken raw, ripe or baked or stewed. They should not be pared.

Apples are particularly useful for treating **anæmia,** being rich in iron, arsenic, and phosphorus.

A good remedy for a **sore** or **relaxed throat** is to take a raw ripe apple and scrape it to a fine pulp with a silver tea-spoon. Eat this pulp with the spoon, very slowly, holding it against the back of the throat as long as possible before swallowing.

The apple is much used among the peasantry of Lincolnshire for the cure of **weak** or **rheumatic eyes.** Likewise in the *Hotel des Invalides* at Paris, an apple poultice is employed for **inflamed eyes,** the apple being roasted, and its pulp applied over the eyes without any intervening substance.

Apple Juice

Freshly prepared *apple juice* is one of the best of all fruit juices and is even superior to grape juice. Malic acid of apples is a milder acid than the tartaric acid of grapes and is much more easily utilised by the body. Apple juice is high in potassium and phosphorus but low in sodium. It metabolizes fatty foods to aid digestion, is fine for the kidneys and promotes intestinal activity. It is an excellent blood-purifier, and tones and cleanses the body. It is good in cases of **constipation, sluggish liver, skin eruptions, poor complexion** and **anæmia.** Freely used, apple juice is a laxative and combats any tendency to **acidosis.** It is a very highly valuable remedy in **gastric** and **intestinal catarrh,** so called **biliousness, jaundice, constipation,** and in cases in which the **kidneys** and the **liver** are **disordered,** in **emaciation, loss of appetite** and general **malnutrition.**

Apple juice is prescribed for **gout** and, in addition, an infusion of apple skins has a strong effect against **uric acid.** These two products, because of their richness in organic acids which free the alkaline valencies, neutralise an excessive **acidity** in the blood.

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Persons subject to **gout** and other disorders due to chronic **uric acid poisoning** may make a liberal use of apple juice to advantage. It may be taken in quantities of 1 kg. or one quart daily with advantage. The best times for taking are one-half hour before each meal and just before retiring at night.

Apple juice should be prepared from selected apples, which should be thoroughly washed before grinding. The juice may be preserved by heating to a temperature of 165° F. for fifteen or twenty minutes.

Apple juice owes to organic potassium salts its diuretic and slightly purgative qualities, useful for **kidney** functioning and the treatment of **skin afflictions.** Some French authors have emphasized the fact that **kidney stones** are very rare in the regions where cider is the standard drink. Infusion of apples and of powdered peel is a simple economic remedy without drawbacks in **kidney troubles.**

Cases of allergy to apples are very rare in medical history (Cohen, 1951 ; Korting and Ulmann, 1950) while generally speaking, fresh apples, or apples treated in all ways, baked, as jam, dried, reduced to meal or powder, as infusions, syrups or fresh or fermented juice, are the fruit which the healthy and sick take and digest best.

Recipes

BAKED APPLES

Wipe and core sour apples. Put in baking dish, and fill cavities with sugar and spice. Allow half cup (4 oz.) sugar and a quarter teaspoon of cinnamon or nutmeg to eight apples. If nutmeg is used a few drops of lemon juice and a few gratings from the rind of lemon to each apple are an improvement. Cover bottom of dish with boiling water and bake in hot oven 400° F. (204.4° C.) for about one-half hour or until soft, *i.e.*, until fruit can be readily pierced with a tooth pick, basting often with syrup in dish. Serve hot or cold with or without cream.

STEAMED APPLES

Baked apples burn rapidly and have a tendency to break unless particular care is given to them during the baking. If the apples are pared and cored and placed in a steamer for the first

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part of the cooking, this will not happen. When the apples are practically done, they are placed in a greased pan, sprinkled with sugar, and browned lightly under a direct flame.

FRIED APPLES

4 cooking apples — 4 oz. sugar
1 oz. fat or butter — 1 teaspoon salt

Wash apples and remove core. Slice without paring. Melt fat in iron skillet; put in apples; sprinkle with salt and sugar. Cover tightly and cook on a very slow fire, fifteen to twenty minutes. At the end of that time, remove cover and brown, stirring carefully to avoid breaking the apples.

CINNAMON APPLES

1 apple — 1 tablespoon (½ oz.) sugar
1 cup water — 6 to 8 cinnamon drops

Pare and core the apple, and place in a baking dish with water, sugar, and cinnamon drops. The last give the apple a pink colour and a slight cinnamon flavour. When the fruit is tender, it is removed, and the remaining syrup is boiled down. When sufficiently thick, it is poured over the apple. The fruit may be served for breakfast or as a dessert.

APPLE TEA

Apple water or *apple tea* is an excellent drink for **fever** patients. The following are two good recipes—

(i) Take two sound apples, wash, but do not peel, and cut into thin slices. Add some stripes of lemon rind. Pour on one pint of boiling water (distilled). Strain when cold.

(ii) Bake two apples. Pour over them one pint boiling water. Strain when cold.

APPLESAUCE

1 apple — ½ to 1 tablespoon sugar

Wash and pare a tart apple. Cut into quarters and remove core. Add just enough water to keep the apple from scorching, cover, and cook slowly until apple mashes readily with a spoon—about 15 minutes. Add the sugar and beat well. The apple need not be peeled if the sauce is to be strained. A few cloves may be cooked with apples.

For serving at breakfast, no spices are added. Nutmeg, cinnamon, or lemon juice may be used for applesauce which is to be served as a dessert.

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APPLE SNOW

Whites of 3 eggs — Powdered sugar
¾ cup applesauce

Pare, quarter, and core four sour apples. Steam until soft and rub through sieve; there should be ¾ cup apple pulp. Beat whites stiff; add, gradually, apple sweetened to taste, and continue beating. Pile lightly on glass dish; chill and serve with soft custard.

APPLE AND CABBAGE SALAD

(Serves six)

1 cup diced apple — ½ cup boiled dressing
2 cups shredded cabbage — Salt

Toss apple and cabbage together with dressing, using wooden fork or spoon. The addition of a shredded carrot improves the attractiveness of this salad.

BOILED DRESSING

(About 1½ cups)

2 tablespoons flour — ¾ cup water or milk
1 tablespoon sugar — ¼ cup mild vinegar
1 teaspoon salt — 1 egg
½ teaspoon dry mustard — 2 tablespoons butter
⅛ teaspoon black pepper

Mix flour, sugar, and seasonings and slowly add milk which has been heated in a double boiler. Cook until thickened, stirring constantly. Add vinegar and blend well. Pour mixture over slightly beaten egg and cook for one or two minutes longer. Add butter and cool before using.

APPLES AND SWEET POTATOES

1 sweet potato — 2 to 4 tablespoons sugar
1 apple — ¼ teaspoon cinnamon
1 tablespoon butter

Scrub sweet potato, boil in water to cover for fifteen minutes, and remove skin. Peel apple, cut into quarter inch slices and cook in boiling water until nearly done. Arrange alternate layers of potatoes and apples in a baking dish. Sprinkle each layer with bits of butter, sugar and cinnamon. Bake in a moderate oven (350° F.) until potatoes and apples are tender—about 25 minutes.

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APPLE BETTY

1 slice toasted bread
½ cup thinly sliced apple
¼ teaspoon cinnamon
1½ teaspoons butter
3 tablespoons brown sugar

Cover bottom of a small greased baking dish with small pieces of toasted bread, arrange half of apple slices over bread, sprinkle with half of sugar, and add a little cinnamon. Dot layer with butter and top with another layer of toast, apple, sugar, cinnamon and butter. Bake for about twenty minutes in a moderate oven. Serve hot with cream.

Variation. Cover apple betty before baking with one-half cup of a custard mixture and bake in a pan of hot water at 350° F.

APPLE PUREE

2 lb. apples
8 oz. apple juice
3-4 oz. sugar
Cinnamon or lemon peel

Wipe apples, remove stalks and calyxes. Cut into pieces, cook in apple juice until tender. Rub through a sieve or prepare in liquidizer. Mix sugar, and cinnamon or peel. If liked, sprinkle one-half ounce extra sugar over finished apple and brown (caramel) with an iron utensil.

STEWED APPLES

2 lb. apples
8-12 oz. apple juice.
3½ oz. sugar
Grated peel of 1 lemon

Peel apples, remove cores and slice. Bring liquid to the boil. Add sugar, fruit and lemon peel. Cook until tender.

APPLE HALVES

2 lb. apples
1 pint apple juice
5½ oz. sugar
1 stick cinnamon

Peel apples, cut in half, and remove cores. Bring liquid to the boil, flavour with sugar and cinnamon, and add the apples, a portion at a time, and cook until tender. Remove with perforated ladle, put on a dish with cut surface uppermost. Fill with the chosen jelly.

APPLE FRITTERS

2 oz. flour
2½ oz. water
1 white of egg
6 apples

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1 oz. apple juice — Sugar and cinnamon mixed
Salt — Vegetable fat

Mix flour to a smooth batter with the water and apple juice. Add salt and stiffly beaten white of egg. Peel and core the apples, and cut slices about half inch thick. Dip in batter. Fry in deep vegetable fat until golden brown. Dip finished fritters in sugar and cinnamon.

APPLE MUESLI

1 large apple (about 7 oz. in weight)
½ oz. whole wheat soaked for 12 hours in 1½ oz. water
½ oz. sweetened condensed milk
½ oz. grated almonds
½ oz. lemon juice

Mix lemon juice and condensed milk to a smooth cream. Add to wheat, stirring thoroughly (the wheat should be soaked in water 12 hours, then rinsed through a sieve and in cold water, and used either whole, coarsely ground, crushed or prepared in electric liquidizer). Wash apple, rub with cloth and remove tops, stalks and any blemishes, then grate it into the mixture, stirring frequently to prevent discolouring. Sprinkle almonds over the finished dish and serve immediately. Half to one ounce water or orange juice can be added if necessary to improve the flavour. The recipe provides the best balance of essential nutrients for a single person, and may be used once or twice a day.

APPLE MUESLI WITH CURD

(For slimming diets and for those who cannot tolerate milk. Tarter in flavour, stimulates digestion.)

1 large apple (or 2-3 small ones)
½ oz. whole wheat soaked for 12 hours in 1½ oz. water
1 teaspoon lemon juice
½ oz. honey (or ¾ oz. sugar)
½ oz. grated almonds
1½ oz. curd

Mix the curd to a smooth consistency with lemon juice. Add to the wheat, stirring well, and mix in the honey or sugar. Prepare and add the apple as explained for Apple Muesli above. Sprinkle almonds over the finished dish and serve immediately.

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APPLE MUESLI WITH CREAM

(Specially enriched dish for those wanting to put on weight and for diabetics who must omit honey and wheat.)

1 large apple (or 2-3 small ones)
1 teaspoon lemon juice
½ oz. honey
½ oz. whole wheat soaked for 12 hours in 1½ oz. water
½ oz. grated almonds
1½-2 oz. cream

Add cream, lemon juice and honey to the wheat and mix thoroughly. Prepare and add apple as already explained above. Sprinkle almonds over the finished dish and serve immediately.

APPLE SALAD

1½ lb. apples
½-1 oz. lemon juice
4 oz. grape juice
3½ oz. sugar

Dissolve sugar in the grape juice, then bring to the boil, and add lemon juice. Cool. Clean and slice apples finely, adding to the cooled syrup.

STUFFED APPLES

4 large or 8 small apples
2 oz. grated almonds
1 oz. *kishmish*
2 oz. cream
1½ oz. sugar
Grated peel of 1 lemon
¼ oz. butter
4-8 oz. apple juice

Wipe fruit, core and make an incision round the apple skin. Mix almonds, *kishmish*, cream, sugar and lemon. Put apples into a fireproof dish and fill centres with mixture. Put dabs of butter on the fruit, sprinkle with sugar. Pour in apple juice to a depth of about half inch, and bake for 20-30 minutes.

APPLE PUDDING

½ lb. apples
2 oz. butter
3 oz. sugar
6 oz. milk
1 oz. cornflour
2 yolks of egg
3 whites of egg
Kishmish
Pinch cinnamon

Grease plain pudding basin with 1 oz. butter; line with *kishmish*. Peel apples and cut into dice. Stew apples in their own juice with sugar, butter and cinnamon (apples should be

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tender, but retain their shape). Mix cornflour with cold milk and butter then cook for a few minutes, stirring constantly. Add yolks of egg and lastly the stiffly beaten whites of egg alternately with apple. Fill pudding basin and steam for one hour.

BAKED APPLE SWEET WITH SAGO

1¼ lb. apples (when peeled)	4 oz. sugar
Apple peels and cores	¾ oz. butter
8 oz. apple juice (or grape juice)	3-4 oz. water
2 oz. sago	

Soak sago for three hours. Slice apples, put in buttered fireproof dish alternately with sago. Cook peels and cores in the apple or grape juice for 10 minutes. Strain, and sugar and pour over mixture. Put dabs of butter on mixture and bake 40-50 minutes.

APPLE SPONGE

12-14 oz. apples	3 yolks of egg
4-5 oz. sugar	3 whites of egg
4½ oz. flour	Grated peel of 1 lemon
3 oz. butter	1 teaspoon baking powder

Beat butter until creamy. Add yolks, sugar and peel, beat again until soft and creamy. Whisk whites of egg to a stiff froth; fold into the mixture alternately with the flour and baking powder. Line bottom of tin with grease-proof paper and cover with mixture. Slice the apples and put on top of the sponge. Sprinkle 2-3 oz. sugar on top and bake for 45 minutes in moderate oven. Sprinkle icing sugar over finished dish before serving.

APPLE PIE

7 medium sized apples	1 oz. raisins
5½ oz. flour	1 egg
2½ oz. butter	Cinnamon
2-3 oz. sugar	Salt

First prepare pastry thus: add butter in small pieces to the flour, well sifted with the salt; rub in lightly; add sugar and egg, knead lightly until smooth. Leave in a cool place for half hour. Then peel, core and slice apples thinly. Mix with sugar, cinnamon, raisins and melted butter. Put mixture into a fireproof dish.

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Roll out pastry to about ¼ inch thick and cut out a lid for the dish from it. Line upper edge of the dish with the remnants of pastry. Put a cup up side down in the dish and put on the pastry lid. Press edges firmly and brush with yolk of egg. Bake for half hour.

APPLE STRUDEL

2-2½ lb. apples	3 oz. raisins
7 oz. flour	3 oz. almonds (grated)
½ oz. oil	3 oz. melted butter
1 egg	2 oz. breadcrumbs, lightly fried
6-7 oz. sugar	2-2½ oz. warm water
Salt	Icing sugar

Mix flour, oil, egg, ¾ oz. butter, water and salt to a smooth paste. Knead well for 15 minutes. Cover with a damp cloth and leave for at least half hour. Peel and core apples, and slice thinly. Spread a large cloth on a table and sprinkle with flour. Roll out the pastry on it very thinly. Pull it out over the back of your hands until it is transparent. Brush pastry with 2½ oz. melted butter and sprinkle with fried breadcrumbs. Arrange apple slices on it then cover with raisins, nuts and sugar. Lift up the cloth on one side and roll up pastry to form a roll. Brush roll with butter. Bake in a hot oven for 30 to 40 minutes. Sprinkle with icing sugar.

APPLE CHARLOTTE

6-8 apples	1 oz. almonds (grated)
¼ oz. butter	½ lb. bread
2 oz. sugar	2-2½ oz. melted butter
1½ oz. raisins	Cinnamon

Peel and core apples, slice thinly. Cook slowly in their own juice with the ¼ oz. butter until soft. Add 1 oz. sugar cinnamon, raisins and almonds. Cut bread into slices about ¼ inch thick. Dip one side of bread into melted butter and then into sugar. Line first bottom and then sides of a fireproof dish with the slices, which must be touching. Fill the dish with the apple mixture and cover with pieces of bread left over. Bake in a moderate oven for 40-60 minutes. Turn over.

APPLE EN ROBE DE CHAMBRE

7 oz. flour	Salt
2½-3½ oz. butter	4-6 apples

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½ oz. sugar	2 oz. sugar and cinnamon mixed
1 egg	1 yolk of egg

Make shortcrust pastry as explained for Apple Pie (page 21). Roll out ½ inch thick and cut into 4-5 inch squares. Peel and core apples and arrange on pastry. Sprinkle with sugar and cinnamon. Fold four corners to the centre. Cut out small fancy pastry shapes and put on top. Brush with yolk of egg and bake in hot oven for 30-40 minutes. Apples may also be stuffed with raisins or currants.

APPLE TART

6-7 medium-sized apples	Salt
7½ oz. flour	2 oz. water
2½-3½ oz. butter	Coating as below

Prepare shortcrust pastry as explained for Apple Pie. Roll out and line baking tin. Peel, core and slice apples and put in circles on the pastry. Finish with the coating as follows :

1 oz. sugar	¾ oz. butter

CINNAMON

Sprinkle sugar and cinnamon over the apples. Dot with butter and bake in moderate oven.

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